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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/982,666

10/18/2001

Dennis R. Trumble

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7647

7590

02/25/2004

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EXAMINER

MACHUGA, JOSEPH S

ART UNIT

PAPER NUMBER

3762

DATE MAILED: 02/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/982,666

Applicant(s)

TRUMBLE, DENNIS R

Examiner

Joseph S. Machuga

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 is/are allowed.
- 6) ☒ Claim(s) 2, 3, 9 and 13 is/are rejected.
- 7) ☒ Claim(s) 4-8, 10-12, 14 and 15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

Response to Amendment

Applicant's arguments have been given careful consideration but are not deemed persuasive. Liotta (5456715) disclose a muscle energy converter for a blood pump. The device has a fluid casing. The fluid from this casing is expelled by a bladder type mechanism driven by an actuator arm. The only difference between this assembly and the invention as recited in claims 2, 3 and 9 is the specific type of pump and the exact location of attachment to the tissue. Counter to applicant's arguments it is the examiners opinion that the references do provide an adequate teaching to render the invention obvious. Hutchins (4185617) discloses a cardiac assist pump. A bellows type pump is used in this device to move fluid. This reference would provide a teaching to use this type of pump to move fluid efficiently and reliably in the same environment as provided for by Liotta. Trumble (5479946) also discloses a muscle energy converter. In this device the pump is attached to tissue at the tendons. The reference explicitly chooses this point because of the strong and stable bonds that would exist (column 6, second paragraph.) Accordingly, the teaching to use a bellows type pump and use the tendons for points of attachment in Liotta's device is considered obvious. Finally, regarding the Norin reference (#1905047) and claim 13. The reference, which is one of many cited in the previous office action, clearly teaches that it is extremely old and well know to use a roller bearing cam follow assembly to convert vertical reciprocal movement to horizontal reciprocal movement. Therefore it is considered an obvious variation of other mechanical movements that one skill in the art would be disposed to

use given it's accepted history of reliability. Accordingly, for these reasons applicant's arguments are not considered persuasive.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2, 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liotta (5456715) in view of Trumble (5479946) and Hutchins (4185617).

3. Liotta disclose a muscle energy converter having casing (a); fluid ports (11", 11"); a bladder type mechanism within the casing to hold fluid (best illustrated in figure 6A) and an actuator arm mechanism (1-6, 23-26.) The reference does not disclose the bellows or explicitly state that the arm mechanism is attached to the tendon.

4. Tremble teaches that it is desirable to attach a muscle energy converter to the tendon to provide a stable long lasting physical connection. This is accomplished by suturing the tendon to a patch of Dacron or Gortex (column 6 lines 1-8.)

5. Hutchins discloses a cardiac assist device that uses a bellows type pump to transfer fluid.

6. It would have been obvious to one of ordinary skill in the art to attach Liotta's device directly to a tendon given Trembles teaching that this provides a long lasting physical connection. To use a bellows type chamber instead of a bladder type fluid

chamber in Liotta's device would have been obvious given Hutchins disclosure that this is a well know alternative and would offer less resistance than a bladder type assembly. The method of claim 9 is considered provided for by this combination since the actuator arm assembly member 24 would rotate about a pivot point as clearly illustrated in figure 6A.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liotta (5456715) in view of Tremble (5479946), Hutchins (4185617) and Norin (1905047).

8. Liotta disclose a muscle energy converter having casing (a); fluid ports (11", 11"); a bladder type mechanism within the casing to hold fluid (best illustrated in figure 6A) and an actuator arm mechanism (1-6, 23-26.) The reference does not disclose the bellows, roller bearing cam follower or explicitly state that the arm mechanism is attached to the tendon.

9. Tremble teaches that it is desirable to attach a muscle energy converter to the tendon to provide a stable long lasting physical connection. This is accomplished by suturing the tendon to a patch of Dacron or Gortex (column 6 lines 1-8.)

10. Norin teaches that a roller bearing cam follower assembly is an old and well know means to convert vertical reciprocal movement to horizontal reciprocal movement.

11. Hutchins discloses a cardiac assist device that uses a bellows type pump to transfer fluid.

12. It would have been obvious to one of ordinary skill in the art to attach Liotta's device to a tendon given Trembles teaching that this provides a long lasting physical

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connection. To use a bellows type chamber instead of a bladder type fluid chamber in Liotta's device would have been obvious given Hutchins disclosure that this is a well know alternative and would offer less resistance than a bladder type assembly. To use a roller bearing cam assembly to convert the vertical reciprocal movement of the arm assembly to horizontal reciprocal movement in place of the lever assembly 23 is considered obvious in view of Norin which teaches that this arrangement is old, well know and dependable alternative.

13. Claim 1 is allowable.

14. Claims 4-8, 10-12, 14 and 15 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims.

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph S. Machuga whose telephone number is 703-305-6184. The examiner can normally be reached on Monday-Friday; 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela D Sykes can be reached on 703-308-5181. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Joseph S. Machuga
Examiner
Art Unit 3762



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